

## REMARKS

Claims 1-22 are currently pending in the application. None of the claims have been amended.

Claims 1-6, 8-13 and 15-21 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,564,203 (“Krishnaprasad”) in view of U.S. Patent Application Publication No. 2004/0073565 (“Kaufman”) and in further view of U.S. Patent No. 6,892,204 (“Haas”). Claims 7, 14 and 22 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Krishnaprasad in view of Kaufman and Haas, and in further view of U.S. Patent No. 6,122,644 (“Graefe”).

Independent claims 1, 8, 15 and 18 recite, in part, a data structure that aggregates changes to values at arbitrary levels of a hierarchy of a complex structured column (*see* claims 1 and 15) and a data structure that represents values in a complex structured type column as an aggregation of changes to the values at arbitrary levels of a hierarchy of the complex structured type column (*see* claims 8 and 18). Applicants respectfully submit that none of the cited references discloses, teaches, or suggests the above claim limitations.

Kaufman discloses, *inter alia*, a fully-functional user interface that can be connected to any arbitrarily complex or large database schema (*e.g.*, a relational database management system (RDBMS)), without any custom software programming (Kaufman at ¶¶ [0009], [0013]). FIGs. 1-4, 7, 8, and 9A-9E in Kaufman illustrate various displays associated with the user interface, and FIG. 5 illustrates an example RDBMS schema upon which the user interface can operate (*id.* at ¶¶ [0014]-[0024]). The Examiner contends that ¶ [0123] of Kaufman “teaches representing modifications to values in the complex structured type column using a data structure that aggregates changes to the values at arbitrary levels of a hierarchy of the complex structured column” (Office Action dated December 15, 2006 (“Office Action”) at § 3, p. 3). Applicants respectfully disagree.

The cited portion of Kaufman states:

To enable such editing access, a mechanism is provided to create *a (series of) cross-referential link(s) from the individual cells* (row-values) in a given column of a Browse-mode display, *with each link forwarding the user to a secondary display--most commonly, to an Edit form for the underlying base-table containing that*

*cell's value* (although it is, in fact, possible to link-through to any arbitrary table, row, and column, and in any "mode").

(Kaufman at ¶ [0123]) (emphasis added). In other words, "[w]hen the user selects (clicks on) the link, the display forwards [the user] to an Edit form for the corresponding record in the appropriate underlying base-table, with the proper edit-field pre-selected" (*id.* at ¶ [0126]). Thus, Kaufman teaches that each time a user wishes to update or edit a value in an underlying base-table, the user must click on the appropriate link on the user interface.

As stated in the Background section of the present application:

Current implementations of nested tables and associated standards offer extensions for querying and updating collections in a nested table. In a conventional nested table system, however, *the nested scalar values are updated one level at a time for each level of scalar values in a collection-valued cell, thus requiring multiple updates to change the stored values in a multi-level cell.*

(*Specification* at ¶ [0004]) (emphasis added). Thus, Kaufman suffers from the same deficiency identified by Applicants in conventional nested table systems (*i.e.*, requiring multiple updates to change the stored values in a multi-level cell). Accordingly, Applicants respectfully submit that Kaufman does not disclose, teach, or suggest a data structure that *aggregates changes* to values at arbitrary levels of a hierarchy of a complex structured column, as recited in claims 1 and 15, and a data structure that represents values in a complex structured type column as an *aggregation of changes* to the values at arbitrary levels of a hierarchy of the complex structured type column, as recited in claims 8 and 18. Applicants further submit that none of the other references cited by the Examiner supply the missing teachings of Kaufman.

As acknowledged by the Examiner, Krishnaprasad does not teach the above claim limitations (*see, e.g.*, Office Action at § 3, p. 2).

Haas discloses an open database model for integrating spatial and linear attribute data in a single relational database, which may have one or more tables for storing such data (*Haas* at col. 4, lines 35-37; FIG. 17). Haas does not use the terms "nested collection" or a "nested table" at all, much less disclose, teach, or suggest a data structure that aggregates changes to the values at any level of a complex structure type column or a collection-valued column.

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**PATENT**

Finally, Graefe was cited with respect to claims 7, 14 and 22 for his teachings of a Halloween Protection system (Office Action at § 4, p. 15) and does not address the above-mentioned shortcomings in the teachings of Kaufman, Krishnaprasad and Hass.

Accordingly, even if the teachings of the cited references could be combined as suggested by the Examiner, the claimed invention would not result because none of the cited references teaches or suggests a data structure that aggregates changes to values at arbitrary levels of a hierarchy of a complex structured column, as claimed. Applicants respectfully request that the rejection of claims 1-22 under 35 U.S.C. § 103(a) be withdrawn.

For at least the foregoing reasons, Applicants respectfully submit that independent claims 1, 8, 15 and 18 patentably define over the cited references and are, therefore, allowable. As claims 2-7 depend from claim 1, claims 9-14 depend from claim 8, claims 16 and 17 depend from claim 15, and claims 19-22 depend from claim 18, Applicants further submit that the dependent claims are likewise allowable. Accordingly, reconsideration of the present application and issuance of a Notice of Allowability are respectfully requested.

Respectfully submitted,

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